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An Inaugural Dissertation On the Modus Operandi Of Medicines.

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In the entire range of Medical science, there is no subject on which a greater diversity of sentiment prevails, than on the Modus Operandi of Medicines.

While one class of physicians contend that the remedial powers of the different articles of the Materia Medica may all be explained on the principle of nervous association, denominated in the familiar language of the day Sympathy, or consent of parts; another no less respectable, not content with the doctrine of Sympathy alone, declare that the principle of absorption is alike necessary for a full and clear illustration of the subject. The advocates of the Sympathetic doctrine allege, that all Medicines, in the first place produce a local impression, which being communicated by some, as yet, mysterious agency, to more distant parts throws them into action corresponding with the nature

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of the article, and in these remote parts, the entire effects of the medicines administered are frequently displayed.

The second class of physicians admit to a limited extent, the sympathetic doctrine, but contend that the operation of medicines is principally effected by their being absorbed into the circulatory system, and by that system carried to the several parts, on which their respective actions are developed. To the first of these doctrines, or the sympathetic exclusively, I am inclined, not less from my own reflections on the subject, than from the consideration, that the Professor of the Institutes and practice of Medicine in the University of Pennsylvania, is deservedly ranked as the leading advocate of the doctrine.

In considering this subject, it will not be foreign to the object of our enquiry, cursorily to notice the processes of digestion

and assimilation. The food destined for the support and nourishment of the body, being masticated and mixed with the saliva, is carried into the stomach, there it meets with a secretion from the small blood vessels of the stomach, called the gastric fluid, which converts it into one homogeneous substance denominated chyme, this being carried into the duodenum, unites with the bile and pancreatic juice which are deposited in this intestine by their respective glands, thence the chymous mass passes on into the small intestines, where the lacteals separate and take up the chyle, which is carried by the absorbent system into the circulation, while the excrementitious matter is finally eliminated from the body.

The chyle having been thus carried into the circulatory fluids is evidently transmuted into pure blood, and continues to nourish and sustain the various

functions of the system.

Our anatomical research
es teach us that medicinal substances to reach
the circulation must also pursue the same route,
because there are no other means by which they
can attain the same destination. It necessarily
follows that they must also be subject to the same
changes of decomposition and new combination
which the food undergoes, because the analy
sis of the human fluids have long since taught
us, that the chyle obtained from the most diverse
aliments never exhibits any variety in its appear
ance and composition. Independently of this uni
formity of the action of the stomach, and the whole
of the digestive functions, the absorbents are
endowed with the capacity of rejecting
all substances which are of an offensive
and deleterious nature.

From these laws of
the animal economy it therefore, follows,

that no substances can enter the circulation in their primitive state, or without having their original properties entirely changed, or so modified that their obnoxious character are entirely lost.

The essential power, however of every remedial article depends upon its obnoxious property, the article becoming inert when this property is destroyed. Consequently so soon as medicines are rendered by the digestive functions capable of being taken up by the absorbent system, their remedial character ceases. This argument continues to gain strength in a progressive investigation of the subject for we not only find the chyle a homogeneous fluid but even the blood itself, the very location of the remedial power of active medicines according to the most strenuous advocate for the doctrine

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The weight of evidence in support of this position is overwhelming. It is considered as an established fact by the accurate and learned Fordyce in his invaluable treatise on febrile diseases, and Lind who has written so ably on the diseases of hot climates, dwells particularly on the homogeneous nature of the blood, in his excellent treatise on Scurvy, in which he clearly shows, that when the body of a scorbutic patient is to appearance little less, than a mass of putrid flesh, the blood retains its homogeneous texture, preserving the appearance of healthy blood amid the ravages of disease

Were we disposed, we might fill the space allotted for a dissertation with quotations of authority on this point, but after citing those Dii Majores of the medical profession we deem it superfluous to adduce additional

evidence

The establishment of the single fact of the homogeneous and unchangable nature of the blood must show the fallacy of the humoral doctrine. For if there be any ground on which the advocates of absorption can rest, it must be on the detection of medicinal articles in the fluids, but where do we find conclusive evidence on this point. It is true that we hear much about the odour of Camphor, Asafoetida, Garlic, & other odoriferous substances, but does this prove the doctrine of absorption? We think not. We know that odours not unfrequently penetrate through what have been considered impermeable substances. We conceive that the whole system may become impregnated with these odoriferous substances by their being transmitted through it, in the same way as through inanimate matter, without having any connection particularly, with the absorbent or circulatory systems

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But leaving those odoriferous articles out of the question, what well conducted and conclusive analysis of the blood have detected in it, in their proper form any of the active remedial articles We must concede however that the colouring matter of Madder and Rhubarb has been discovered in the serum of the blood, but this is not until the blood may be regarded as having undergone a partial decomposition, for what are the circumstances under which this detection takes place? The blood in the first place is withdrawn from the mass of the circulating fluids, and thereby removed from the vital energy of the system, their energies no longer operating, it separates into serum and coagulable lymph which may be considered as the incipient state of decomposition, and it is not until after this stage that these colouring principles are developed.

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A source of great error in prosecuting research on this subject results from not keeping our attention constantly directed to the grand distinction of living and dead matter, and the very diverse nature of the several laws which govern them.

The laws of physiology are entirely distinct from those of Chemistry and we should subject ourselves to ridicule were we to attempt to explain a chemical experiment on those principles which appertain exclusively to vitality, and yet we find that the laws of chemical science are constantly resorted to for the purpose of illustrating the phenomena of vital actions.

The power of the vital energies has never been fully appreciated, but so far as this subject has been investigated the results have been conclusive in regard to its aston=

ishing effects. This we must be convinced of from a moments reflection on the single fact, that the most solid substances may be dissolved entirely by the gastric juice, while the tender coats of the stomach remain uninjured, and the most tender and delicately organized living being sport in it with impunity to themselves.

These considerations enable us to explain, without abandoning our theory, those facts which have been supposed against the doctrine, we are vindicating, deduced from the detection of certain articles in the secretions and excretions.

During the process of digestion, these articles have been decomposed and their elementary principles carried into the circulation, while there they were subject to the influence of the vital energy, and prevented from combining, but no sooner are they removed beyond the sphere of this vital action, than the laws of chemistry again prevail and the original combi-

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nations are re-established.

In reviewing the labours of our medical predecessors, we are impressed with mingled emotions of ridicule and regret, when we reflect on the great waste of time and materials which have been expended in the prosecution of experiments on dead matter to illustrate the principles and functions of living organized bodies, and we are constrained to apply this charge to some of the most illustrious members of the profession.

It was the application of laws foreign to vitality, for the illustration of morbid phenomena, which threw a veil of obscurity, around the otherwise splendid labours of Boerhaave and Sydenham.

One of the strongest arguments which the Humoralists rest their doctrine on, is the supposed effects which result from the

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introduction of medicinal substances into the blood vessels of living animals, and if full credence and entire confidence could be given to the reports of some of the experimentalists, little more would be required to confirm and establish the humoral doctrine.

Who could doubt but that medicines operated on the system by being absorbed into the circulation, when precisely the same effects as result from their internal administration might be obtained by injecting into a vein a small quantity of any given article.

The fallacy however which attends most experiments is considerably lightened by their being performed on living animals, and we know no circumstances under which fallacious impressions would be more likely to occur, than in tracing the effects of medicines on tortured, mangled, and afflicted

animals.

The animal functions it must be admitted, are greatly under the influence of corporeal suffering. We have seen the deleterious effects of Opium suspended by severe castigation, and we shall endeavour to show that most of the effects which have been attributed to injected medicines, may be justly ascribed to the violence with which they were administered. We have seen copious discharges of faces and urine from cats produced from great alarm, and have also witnessed the same discharges from a servant boy in consequence of a severe whipping. Long and profound fits of faint-ing, not unfrequently occur in persons of nervous temperaments in consequence of sudden and great alarms.

I am informed by a gentleman of the Medical Class, (Mr Powe) from South Carolina

on whose veracity I rely with the most implicit confidence, that he knew obstinate constipation in a case of Chol. is completely removed, when all the usual remedies had proved ineffectual, ~~by~~ by a sudden and violent alarm, purposely induced by the physician. This patient had been attended by other physicians, when the one in question was consulted, who on entering the patients apartment, threw off his coat and swore that if the patient did not evacuate that he would kill him. The poor fellow terribly affrighted immediately called for the chamber and had a copious discharge from the bowels. The inspection of a foul ulcer and in some persons, and particularly those unaccustomed to witness such spectacles not unfrequently produces vomiting and our sympathetic feelings are so powerful in some instances, that in witnessing great emotions of grief or joy we are not unfrequently effected in a similar manner.

Our medical

books abound with cases of Epilepsies, and other spasmodic and convulsive diseases, which have been produced exclusively by seeing others labour under affections of a similar nature.

In addition to the above cited facts and arguments, we are induced to attribute, the effects related by experimentalists, rather to the severity of the operations, than to any peculiar action of the medicines, from their informing us that the same medicine under like circumstances produces dissimilar effects, that it sometimes purges, sometimes has an emetic effect and at other times only generally deranges the actions of the system by inducing convulsions, and other spasmodic actions.

With the view of fulfiling the duty which enjoins the preparation of an Inaugural dissertation, we have endeavoured to present some of the facts and reasonings, which we conceive may

be adduced in favour of the sympathetic doctrine of the Modus Operandi of Medicines. Fully impressed with the consciousness of the imperfect manner in which the duty has been executed, we submit the result of our labour animated by the cheering hope that its numerous imperfections and errors, may be regarded with that kind of indulgence which enlarged and liberal minds are always wont to bestow on the crude productions of immature intellect.

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